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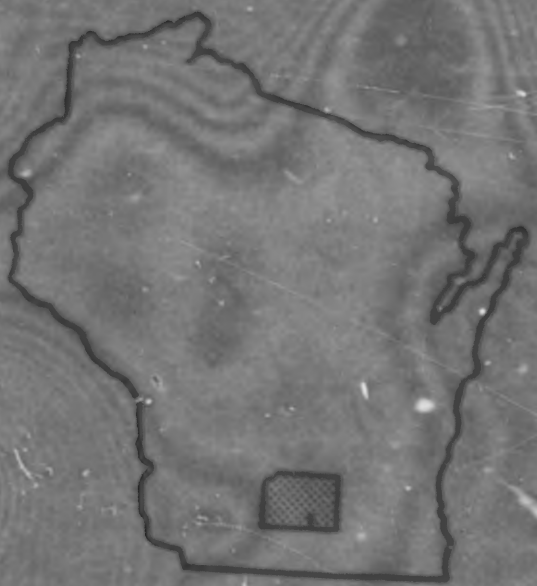
FLOOD INSURANCE STUDY

COMPLETED

ORIGINAL

VILLAGE OF BELLEVILLE, WISCONSIN

DANE AND GREEN COUNTIES



REVISED

SEPTEMBER 18, 1986

Federal Emergency Management Agency

COMMUNITY NUMBER 550159

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Sugar River Panel 01P

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PUBLISHED SEPARATELY:

Flood Insurance Rate Map

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NOTICE TO
FLOOD INSURANCE STUDY USERS

Individual components of this Flood Insurance Study (i.e., text, tables, profiles, and maps) are all subject to revision as additional data become available. Because revised components may be issued separately, study users should consult the community map repository for those components that are currently effective.

In cases where this Flood Insurance Study and any components thereof warrant revision, a Revisions Description section may be incorporated into this text. When applicable, study users should refer to the Revisions Description to obtain pertinent data and information concerning revisions.

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FLOOD INSURANCE STUDY

VILLAGE OF BELLEVILLE,
DANE AND GREEN COUNTIES, WISCONSIN

1.0 INTRODUCTION

1.1 Purpose of Study

The purpose of this Flood Insurance Study is to investigate the existence and severity of flood hazards in the Village of Belleville, Dane and Green Counties, Wisconsin, and to aid in the administration of the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973. Initial use of this information will be to convert the Village of Belleville to the regular program of flood insurance by the Federal Insurance Administration. Further use of the information will be made by local and regional planners in their efforts to promote sound land use and flood plain management.

1.2 Coordination

Flooding sources to be studied by detailed and approximate methods were selected at an initial coordination and time and cost meeting held on December 15, 1977. Flood elevations, flood boundaries, and floodway delineations were coordinated with Lakeland Engineers, Inc.; the Wisconsin Department of Natural Resources (WDNR); the Dane County Regional Planning Commission (DCRPC); the Village of Belleville; and the U.S. Geological Survey (USGS).

On May 15, 1979, the results of the work by the Study Contractor were reviewed and accepted at a final coordination meeting attended by representatives of the Study Contractor, the Federal Insurance Administration, and the Village of Belleville.

1.3 Authority and Acknowledgements

The source of authority for this Flood Insurance Study is the National Flood Insurance Act of 1968, as amended.

The hydrologic and hydraulic analyses for this study were performed by the U.S. Geological Survey for the Federal Insurance Administration, under Inter-Agency Agreement No. IAA-H-14-78, Project Order No. 3. This work, which was completed in November 1978, covered all significant flooding sources affecting the Village of Belleville.

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2.0 AREA STUDIED

2.1 Scope of Study

This Flood Insurance Study covers the Village of Belleville. The area of study is shown on the Vicinity Map (Figure 1).

The areas studied by detailed methods were selected with priority given to all known flood hazard areas, and areas of projected development or proposed construction until 1983. The scope and methods of study were proposed to and agreed upon by the Federal Insurance Administration and the Village of Belleville.

The flooding source studied by detailed methods is the entire Sugar River within the corporate limits of Belleville. No approximate studies were made.

2.2 Community Description

Belleville is in southern Dane County and northern Green County in south-central Wisconsin. Adjacent communities are the Village of New Glarus which is 6 miles southwest of Belleville and the City of Madison which is 17 miles northeast of Belleville. The 1970 census recorded the population of Belleville at 1,063. The estimated population in January 1977 was 1,257 (Reference 1).

Characteristics of the climate in Belleville include summer temperatures which average a monthly high of 71 degrees Fahrenheit (F.) in July and a monthly low of 61 degrees F. in September. The winter temperatures average a monthly high of 31 degrees F. in March and a monthly low of 18 degrees F. in January (Reference 2). Annual precipitation is 31 inches (Reference 2). Stream gage records take into account the effect of snowmelt on flooding.

Factors which affect flooding include topography, geomorphology, soils, vegetation, and features of drainage. The Sugar River basin lies at the edge of the driftless area of southwestern Wisconsin. The name comes from the fact that this area was missed by the most recent period of glacial activity and, therefore, is typified by extensive dendritic stream patterns draining high hills and deep valleys. The Sugar River upstream from Belleville lies in a broad alluvial valley subject to extensive erosion during high river stages (Reference 3). Soil types in the Sugar River basin are principally silt loams and silty clay loams, susceptible to erosion. Infiltration rates are highly variable (References 4 and 5). Most of the basin is devoted to cropland and pasture. Approximately 15 percent of the basin is forested. The Sugar River and the West Branch Sugar River upstream from Belleville meander through wide alluvial valleys which measure up to one mile across. Stream slopes are moderate. Overbank storage will be a significant factor during extreme floods.

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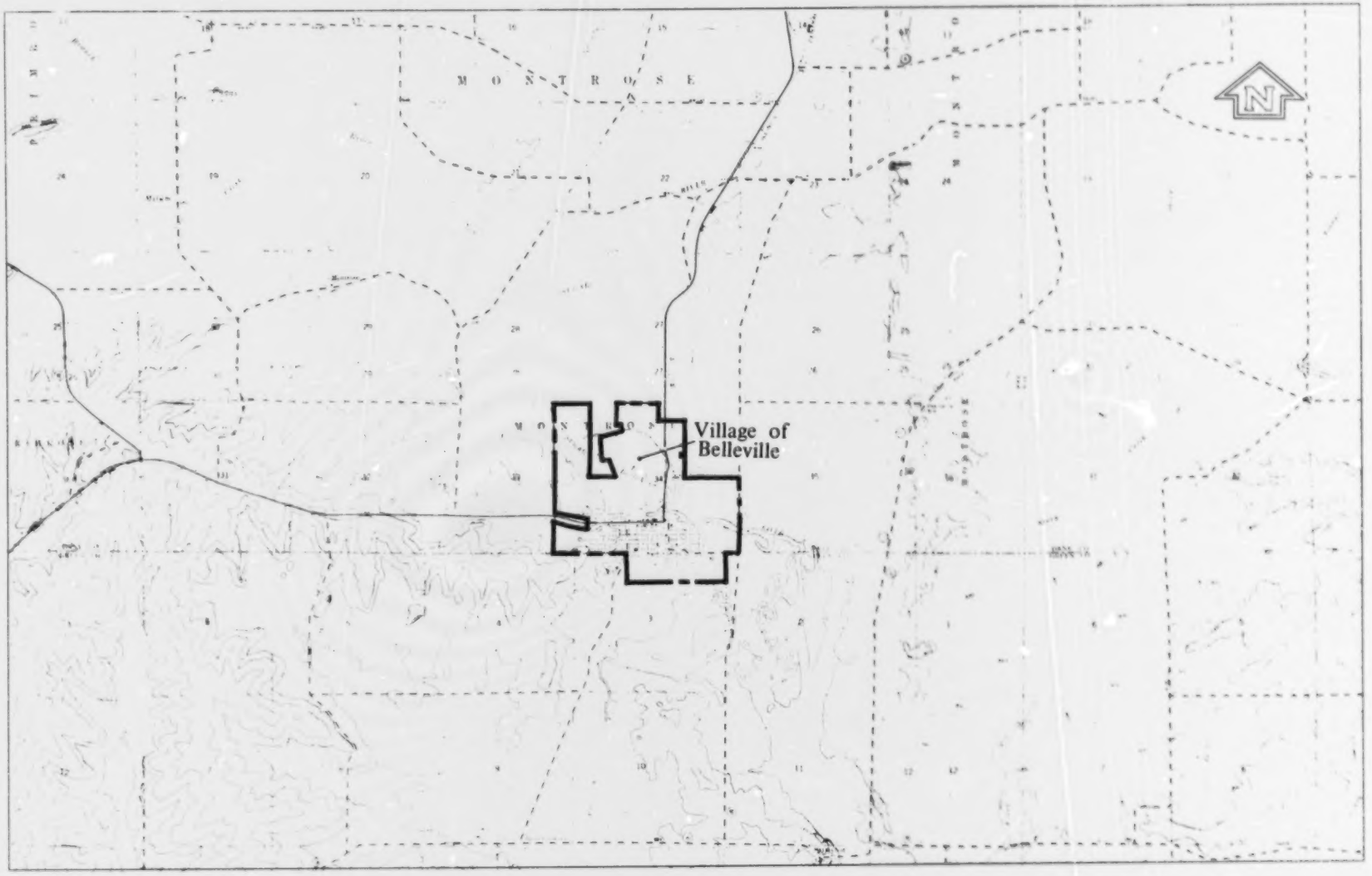

FIGURE 1

FEDERAL EMERGENCY MANAGEMENT AGENCY

VILLAGE OF BELLEVILLE, WI
(DANE AND GREEN COS.)

APPROXIMATE SCALE

1 0 1 2 3 MILES

VICINITY MAP

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Patterns of residential and commercial development are not extremely varied. Residential development is occurring north, west, and south from the center of the village. Commercial development is not a factor. The major land use in Belleville is residential. A few large farms are located in the eastern and western portions of the community. Lake Belle View occupies about 100 acres within the village limits. Principal land uses in the Sugar River basin upstream from Belleville are cropland and pastures. The flood plain of the Sugar River is almost entirely undeveloped.

2.3 Principal Flood Problems

The types of storms which cause flooding are intense rainstorms in the summer and fall or a combination of snowmelt and rainfall runoff from frozen, impervious ground.

A record flood occurred on September 17, 1915, when a heavy rainstorm washed out the dam and caused extensive overflows in what is now the eastern part of the village. An "estimated 7.5 to 11 inches" of rain fell in the area (Reference 6). Floodwaters inundated the basement of the one home then in existence. No information is known regarding the frequency or elevation of this flood. There are no other known historical flood problems in the village.

2.4 Flood Protection Measures

Lake Belle View is created by Belleville Dam within the village. This pond does not have sufficient capacity to affect significantly the outflow hydrograph for the Sugar River. Stages upstream from the dam are, of course, higher than they would be if the dam did not exist. Village of Belleville Ordinance No. 5-1-78(2), dated May 1, 1978, regulates the use of flood plain lands within the village. Flood plain zoning is also regulated by state law.

3.0 ENGINEERING METHODS

For flooding sources studied in detail in the community, standard hydrologic and hydraulic study methods were used to determine the flood hazard data required for this study. Floods having recurrence intervals of 10, 50, 100, and 500 years have been selected as having special significance for flood plain management and for flood insurance premium rates. The analyses reported here reflect current conditions in the watersheds of the streams.

3.1 Hydrologic Analyses

Hydrologic analyses were carried out to establish the peak discharge-frequency relationships for floods of the selected recurrence intervals for the flooding source studied in detail in the community.

Regional flood-frequency equations developed by Conger (Reference 7) were used to compute flood discharge for sites on the Sugar River for two

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studies (References 8 and 9). Conger's method is based on drainage basin area, main channel slope, lake and marsh area, areal factors determined through Conger's research, and equations which are developed for the region based on linear regression analysis. The discharge figures in Table 1 were submitted to the WDNR for review and comment.

Peak discharges for the 10-, 50-, 100-, and 500-year floods of the flooding source studied in detail in the community are shown in Table 1.

TABLE 1 - SUMMARY OF DISCHARGES

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (SQ MILES)	PEAK DISCHARGE (CFS) 10-YEAR	50-YEAR	100-YEAR	500-YEAR
SUGAR RIVER					
State Highway 69 bridge	172	3,600	5,900	7,200	10,500

3.2 Hydraulic Analyses

Analyses of the hydraulic characteristics of the streams in the community were carried out to provide estimates of the elevations of the floods of the selected recurrence intervals along the flooding source studied in detail.

Overbank cross section data were obtained using photogrammetric methods (Reference 10). Channel and stream cross sections were obtained through field survey. Bridges were surveyed to obtain elevation data and structural geometry.

Locations of selected cross sections used in the hydraulic analyses are shown on the Flood Profiles (Exhibit 1). For stream segments for which a floodway is computed (Section 4.2), selected cross section locations are shown on the Flood Boundary and Floodway Map (Exhibit 2).

Hydraulic analyses of the Sugar River were carried out for the previous studies (References 8 and 9). Roughness factors, which were determined by the "n" value in the Manning formula, were estimated on the basis of field inspection. The range of "n" for the channel was from 0.035 to 0.055; the range of "n" for the overbank was from 0.045 to 0.140.

Starting water-surface elevations at section A were continued from those effective for a previous study (Reference 9). Starting water-surface elevations at section G just upstream from Belleville Dam were established by dam overflow computations using procedures recommended by Hulsing (Reference 11). Water-surface profiles of the 10-, 50-, 100-, and 500-year

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floods were computed using the USGS E-431 step-backwater digital computer model (Reference 12). Input to the computer model consisted of stream-valley cross sections, bridge geometry, surface roughness, and peak-discharge data.

A profile determined from high water marks for a moderate flood in March 1973, with less than a 10-year frequency, was compared with the computed flood-frequency profiles. Flood profiles were drawn showing computed water-surface elevations to an accuracy of 0.5 foot for floods of the selected recurrence intervals (Exhibit 1). Although the best definition of the flood was for reaches of the Sugar River outside the village, the profile did provide some verification of the computed profiles.

The hydraulic analyses for this study are based only on the effects of unobstructed flow. The flood elevations as shown on the profiles are, therefore, considered valid only if hydraulic structures, in general, remain unobstructed and if channel and overbank conditions remain essentially the same as ascertained during this study.

All elevations are referenced from National Geodetic Vertical Datum of 1929 (NGVD); elevation reference marks used in the study are shown on the maps.

4.0 FLOOD PLAIN MANAGEMENT APPLICATIONS

A prime purpose of the National Flood Insurance Program is to encourage state and local governments to adopt sound flood plain management programs. Each Flood Insurance Study, therefore, includes a flood boundary map designed to assist communities in developing sound flood plain management measures.

4.1 Flood Boundaries

In order to provide a national standard without regional discrimination, the 100-year flood has been adopted by the Federal Insurance Administration as the base flood for purposes of flood plain management measures. The 500-year flood is employed to indicate additional areas of flood risk in the community. For each flooding source studied in detail, the boundaries of the 100-year and the 500-year floods have been delineated using the elevations determined at each cross section; between cross sections the boundaries were interpolated using available topographic maps at a scale of 1:4800, with a contour interval of two feet (Reference 13), field inspection, and engineering judgment.

The boundaries of the 100- and 500-year floods are shown on the Flood Boundary and Floodway Map (Exhibit 2). Small areas within the flood boundaries may lie above the flood elevations and, therefore, not be subject to flooding; owing to lack of detailed topographical information or to limitations of the map scale, such areas are not shown. In cases where the

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100-year and the 500-year flood boundaries are close together, only the 100-year boundary has been shown.

Certain areas shown on the Flood Hazard Boundary Map (Reference 14) were determined to be areas of minimal flooding and, as such, have not been included on the Flood Boundary and Floodway Map and the Flood Insurance Rate Map.

4.2 Floodways

Encroachment on flood plains, such as artificial fill, reduces the flood-carrying capacity and increases flood heights, thus increasing flood hazard in areas beyond the encroachment itself. One aspect of flood plain management involves balancing the economic gain from flood plain development against the resulting increase in flood hazard. For purposes of the Flood Insurance Program, the concept of a floodway is used as a tool to assist local communities in this aspect of flood plain management. Under this concept, the area of the 100-year flood is divided into a floodway and a floodway fringe. The floodway is the channel of a stream, plus any adjacent flood plain areas, that must be kept free of encroachment in order that the 100-year flood be carried without substantial increases in flood heights. As minimum standards, the Federal Insurance Administration limits such increases in flood heights to 1.0 foot, provided that hazardous velocities are not produced. In addition, the WDNR is required under Wisconsin Administrative Code Chapter NR116 (Reference 15) to establish minimum standards for local flood plain zoning ordinances. The WDNR has established a policy that limits encroachment in the flood plain to that which will not cause any significant increase in flood heights. Exceptions are possible under special circumstances and with the concurrence of the WDNR. Thus, a floodway having a zero or a negligible surcharge has been delineated for this study. For the floodway determined in this study, there was no elevation increase between the 100-year flood plain (natural) profile and 100-year floodway profiles.

Natural flood profiles were calculated using the effective flow areas. The floodway boundary, due to the limiting low surcharge and topographic characteristics of the valley, is equivalent to the 100-year flood boundary except for areas that have no conveyance. The results of these computations were tabulated at selected cross sections for each stream segment for which a floodway was computed (Table 2). A portion of the floodway for the Sugar River lies outside the corporate limits. No floodway has been previously delineated within the Village of Belleville.

As shown on the Flood Boundary and Floodway Map (Exhibit 2), the floodway boundaries were determined at cross sections; between cross sections, the boundaries were interpolated. In cases where the boundaries of the floodway and the 100-year flood are either close together or collinear, only the floodway boundary has been shown.

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FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC.)	REGULATORY (FEET NGVD)	WITHOUT FLOODWAY (FEET NGVD)	WITH FLOODWAY (FEET NGVD)	INCREASE (FEET)
SUGAR CREEK								
A	60.11	172	1704	4.70	856.1	856.1	856.1	0.0
B	60.34	250	1812	4.40	857.1	857.1	857.1	0.0
C	60.56	157	1626	4.90	858.3	858.3	858.3	0.0
D	60.59	274	2204	3.60	858.8	858.8	858.8	0.0
E	60.64	116	1452	5.50	859.0	859.0	859.0	0.0
F	60.67	116	1474	5.40	859.2	859.2	859.2	0.0
G	60.81	266	1961	3.67	862.0	862.0	862.0	0.0
H	60.99	453	3234	2.23	862.4	862.4	862.4	0.0
I	61.28	2470[2]	14,026	0.51	862.6	862.6	862.6	0.0
J	61.66	889	2550	2.82	862.9	862.9	862.9	0.0
K	62.00	710[2]	4822	1.49	864.4	864.4	864.4	0.0

[1]MILES ABOVE MOUTH
[2]THIS WIDTH EXTENDS BEYOND CORPORATE LIMITS

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TABLE 2

FEDERAL EMERGENCY MANAGEMENT AGENCY

VILLAGE OF BELLEVILLE, WI

(DANE AND GREEN COS.)

FLOODWAY DATA

SUGAR RIVER

The area between the floodway and the boundary of the 100-year flood is termed the floodway fringe. The floodway fringe thus encompasses the portion of the flood plain that could be completely obstructed without increasing the water-surface elevation of the 100-year flood more than 0.0 foot at any point. Typical relationships between the floodway and the floodway fringe and their significance to flood plain development are shown in Figure 2.

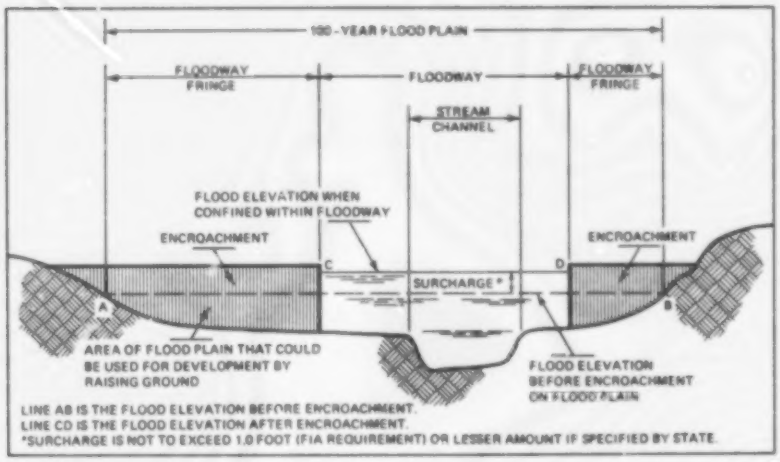
100-YEAR FLOOD PLAIN
FLOODWAY FRINGE
FLOODWAY
FLOODWAY FRINGE
STREAM CHANNEL
FLOOD ELEVATION WHEN CONFINED WITHIN FLOODWAY
ENCROACHMENT
ENCROACHMENT
C
D
SURCHARGE *
A
B
AREA OF FLOOD PLAIN THAT COULD BE USED FOR DEVELOPMENT BY RAISING GROUND
FLOOD ELEVATION BEFORE ENCROACHMENT ON FLOOD PLAIN
LINE AB IS THE FLOOD ELEVATION BEFORE ENCROACHMENT.
LINE CD IS THE FLOOD ELEVATION AFTER ENCROACHMENT.
*SURCHARGE IS NOT TO EXCEED 1.0 FOOT (FIA REQUIREMENT) OR LESSER AMOUNT IF SPECIFIED BY STATE.

FIGURE 2 - Floodway Schematic

5.0 INSURANCE APPLICATION

In order to establish actuarial insurance rates, the Federal Insurance Administration has developed a process to transform the data from the engineering study into flood insurance criteria. This process includes the determination of reaches, Flood Hazard Factors, and flood insurance zone designations for each flooding source affecting the Village of Belleville.

5.1 Reach Determinations

Reaches are defined as lengths of watercourses having relatively the same flood hazard, based on the average weighted difference in water-surface elevations between the 10- and 100-year floods.This difference does not have a variation greater than that indicated in the following table for more than 20 percent of the reach.

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Average Difference Between 10- and 100-year Floods	Variation
Less than 2 feet	0.5 foot
2 to 7 feet	1.0 foot
7.1 to 12 feet	2.0 feet
More than 12 feet	3.0 feet

The locations of the reaches determined for the Village of Belleville are shown on the Flood Profiles (Exhibit 1) and are summarized in the Flood Insurance Zone Data Table (Table 3).

5.2 Flood Hazard Factors

The Flood Hazard Factor is the Federal Insurance Administration device used to correlate flood information with insurance rate tables. Correlations between property damage from floods and their Flood Hazard Factors are used to set actuarial insurance premium rate tables based on Flood Hazard Factors from 005 to 200.

The Flood Hazard Factor for a reach is the average weighted difference between the 10- and 100-year flood water-surface elevations expressed to the nearest 0.5 foot, and shown as a three-digit code. For example, if the difference between water-surface elevations of the 10- and 100-year floods is 0.7 foot, the Flood Hazard Factor is 005; if the difference is 1.4 feet, the Flood Hazard Factor is 015; if the difference is 5.0 feet, the Flood Hazard Factor is 050. When the difference between the 10-and 100-year water-surface elevations is greater than 10.0 feet, accuracy for the Flood Hazard Factor is to the nearest foot.

5.3 Flood Insurance Zones

After the determination of reaches and their respective Flood Hazard Factors, the Village of Belleville was divided into zones, each having a specific flood potential or hazard. Each zone was assigned one of the following flood insurance zone designations:

Zones A3, A6: Special Flood Hazard Areas inundated by the 100-year flood, determined by detailed methods; base flood elevations are shown, and zones subdivided according to Flood Hazard Factor.

Zone B: Areas between the Special Flood Hazard Area and the limits of the 500-year flood, including areas of the 500-year flood plain that are protected from the 100-year

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flood by dike, levee, or other water control structure; or areas subject to certain types of 100-year shallow flooding where depths are less than 1.0 foot; and areas subject to 100-year flooding from sources with drainage areas less than 1 square mile. Zone B is not subdivided.

Zone C: Areas of minimal flooding.

Table 3, "Flood Insurance Zone Data," summarizes the flood elevation differences, Flood Hazard Factors, flood insurance zones, and base flood elevations for the flooding source studied in detail in the community.

5.4 Flood Insurance Rate Map Description

The Flood Insurance Rate Map for the Village of Belleville is, for insurance purposes, the principal result of the Flood Insurance Study. This map (published separately) contains the official delineation of flood insurance zones and base flood elevation lines. Base flood elevation lines show the locations of the expected whole-foot water-surface elevations of the base (100-year) flood. This map is developed in accordance with the latest flood insurance map preparation guidelines published by the Federal Insurance Administration.

6.0 OTHER STUDIES

The 10-, 50-, 100-, and 500-year flood profiles for the Sugar River were obtained from a previously published USGS Open-File Report (Reference 8) and the Dane County Flood Insurance Study (Reference 9). The data presented in this report agree with those previously published except as noted below. This report additionally includes a floodway for the reach within the corporate limits. The corporate limits of Belleville differ somewhat from those in the Dane County Flood Insurance Study due to recent annexations.

Along the Sugar River downstream from Belleville, the Flood Hazard Factor in the Dane County Flood Insurance Study was computed as 015 by averaging with the stream reach upstream from Belleville. In this study, the Flood Hazard Factor downstream from the dam is definitely 030, which means that there is a change from 015 to 030 at Remy Road, the downstream corporate limit of Belleville. Upstream from the dam, the Flood Hazard Factor is 015; therefore, no change occurs at the upstream corporate limit.

A Flood Hazard Boundary Map has been published by the Federal Insurance Administration (Reference 14). The differences between the Flood Hazard Boundary Map and this study are justified due to the more detailed nature of this Flood Insurance Study.

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FLOODING SOURCE	PANEL[1]	ELEVATION DIFFERENCE[2] BETWEEN 1.0% (100-YEAR) FLOOD AND			FLOOD HAZARD FACTOR	ZONE	BASE FLOOD ELEVATION[3] (FEET NGVD)
		10% (10-YEAR)	2% (50-YEAR)	0.2% (500-YEAR)			
SUGAR RIVER							
REACH 1	0001	−3.0	−0.9	1.9	030	A6	VARIES—SEE MAP
REACH 2	0001	−1.6	−0.5	0.9	015	A3	VARIES—SEE MAP

[1]FLOOD INSURANCE RATE MAP PANEL
[2]WEIGHTED AVERAGE
[3]ROUNDED TO NEAREST FOOT

TABLE 2

FEDERAL EMERGENCY MANAGEMENT AGENCY

VILLAGE OF BELLEVILLE, WI

(DANE AND GREEN COS.)

FLOOD INSURANCE ZONE DATA

SUGAR RIVER

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This report either supersedes or is compatible with all previous studies published on streams studied in this report and should be considered authoritative for the purposes of the National Flood Insurance Program.

7.0 LOCATION OF DATA

Survey, hydrologic, hydraulic and other pertinent data used in this study can be obtained by contacting the Insurance and Mitigation Division, Federal Emergency Management Agency, One North Dearborn Street, Chicago, Illinois 60602.

8.0 REFERENCES AND BIBLIOGRAPHY

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9.0 REVISIONS DESCRIPTION (Revised: September 18, 1986)

9.1 Purpose

The purpose of this Flood Insurance Study Revisions Description is to incorporate new and revised data into this currently effective Flood Insurance Study for the Village of Belleville, Dane and Green Counties, Wisconsin. This Revisions Description is intended to provide updated information that aids in the administration of the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973.

9.2 Acknowledgments

The hydrologic and hydraulic analyses for this Revisions Description were performed by the State of Wisconsin Department of Natural Resources. The Federal Emergency Management Agency (FEMA) reviewed and accepted these data for purposes of this revision.

9.3 Scope

This revision applies to the reach of the Sugar River through the Village of Belleville from the Belleville Dam downstream to the corporate limits.

9.4 Hydrologic and Hydraulic Analyses

In the previous Flood Insurance Studies for Dane and Green Counties (References 1 and 2), a 100-year discharge difference of 3,800 cubic feet per second (cfs) (7,200 cfs vs. 11,000 cfs) on the Sugar River resulted in a base flood elevation difference of 1.0 foot National Geodetic Vertical Datum of 1929 (NGVD) at the border between the two counties (854.4 feet NGVD vs. 855.4 feet NGVD). As a result of this mismatch, it was determined that a revised 100-year discharge of 8,000 cfs be used. This change affects the Village of Belleville, which is located along the Sugar River approximately 2,600 feet upstream of the Dane-Green county border. The 100-year discharge of 7,200 cfs previously used in the Flood Insurance Study for the Village of Belleville was changed to 8,000 cfs as shown in Table 4.

TABLE 4 - REVISED SUMMARY OF DISCHARGES

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (SQ MILES)	PEAK DISCHARGE (CFS) 10-YEAR	50-YEAR	100-YEAR	500-YEAR
SUGAR RIVER at State Highway 69 bridge	172	3,600	5,900	8,000	10,500

The 10-, 50-, and 500-year discharges were not revised. The 8,000 cfs value was determined by the State of Wisconsin by comparing the basin with other gaged basins of similar topography and size, by transferring the gage value from a gage near the City of Brodhead (No. 05-4365), and by applying the U.S. Geological Survey regression equations for the area (Reference 3).

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The hydraulic analysis was revised upstream to the Belleville Dam to utilize the new discharge value. The E-431 model (Reference 4) previously used in the Flood Insurance Study for the Village of Belleville was remodeled using the U.S. Army Corps of Engineers HEC-2 step-backwater computer model (Reference 5). While the change in discharge resulted in no change in the range of base flood elevations in Belleville (855.6 feet NGVD at the downstream corporate limits to 859.2 feet NGVD at Belleville Dam), the base flood elevation just upstream of the Illinois Central Gulf Railroad increased by more than 0.5 foot.

9.5 Floodways

Floodway computations for the Sugar River were revised as a result of a revised hydraulic analysis. The floodways were computed on the basis of equal conveyance reduction from each side of the floodplain. The results of these computations were tabulated at selected cross sections for each stream segment for which a floodway was revised and are presented in Table 2, Floodway Data.

9.6 Other Studies

A revision to the Flood Insurance Study for the Unincorporated Areas of Dane County is currently in progress (Reference 6). This revision for the City of Belleville is in agreement with the revised Flood Insurance Study for Dane County.

9.7 Location of Data

Information concerning the pertinent data used in the preparation of this study can be obtained by contacting the Natural and Technological Hazards Division, FEMA, 300 South Wacker Drive, Chicago, Illinois 60606.

9.8 References and Bibliography

1. U.S. Department of Housing and Urban Development, Federal Insurance Administration, Flood Insurance Study, Dane County, Unincorporated Areas, Wisconsin, March 1978.

2. Federal Emergency Management Agency, Flood Insurance Study, Green County, Unincorporated Areas, Wisconsin, March 1983.

3. U.S. Geological Survey, Open-File Report, Estimating Magnitude and Frequency of Floods in Wisconsin, D.H. Conger, 1981.

4. ————, Computer Program E-431, Computer Applications of Step-Backwater and Flood Analyses, 1976.

5. U.S. Army Corps of Engineers, Hydrologic Engineering Center, HEC-2 Water-Surface Profiles Generalized Computer Program, Davis, California, November 1976.

6. Federal Emergency Management Agency, Flood Insurance Study, Dane County, Unincorporated Areas, Wisconsin, in progress.

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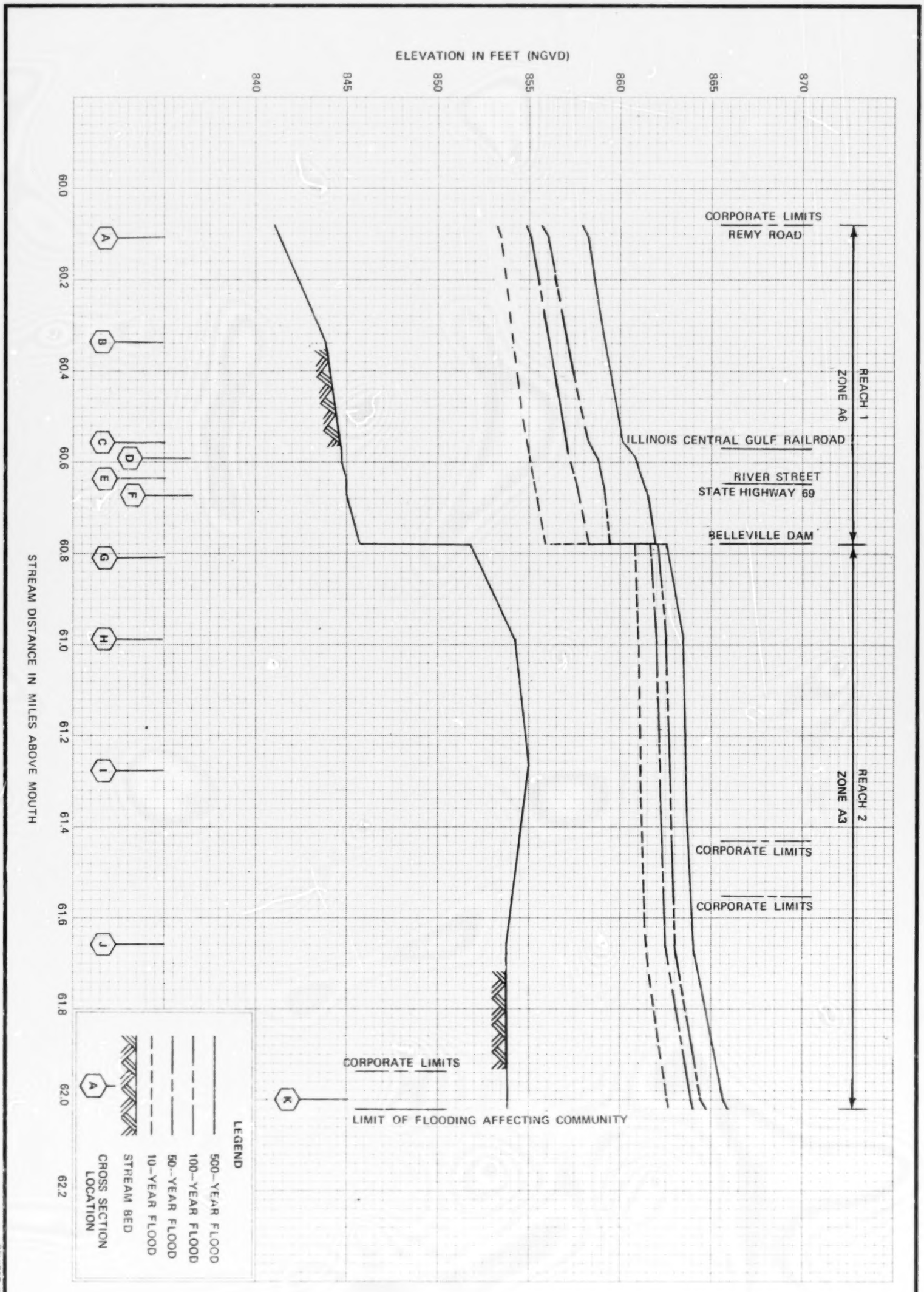

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FEDERAL EMERGENCY MANAGEMENT AGENCY

VILLAGE OF BELLEVILLE, WI

(DANE AND GREEN COS.)

FLOOD PROFILES

SUGAR RIVER

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